



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
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NEW YORK, NY 10007-1866

VIA EXPRESS MAIL

October 4, 1999

Susanne Peticolas, Esq.
Gibbons, Del Deo, Dolan, Griffinger & Vecchione
One Riverfront Plaza
Newark, NJ 07102-5497

Re: RI/FS For Route 561 Dump Site, US Avenue Burn Site, and Hilliard's Creek
Order on Consent For RI/FS - Index No. II CERCLA-02-99-2035

Dear Ms. Peticolas:

Attached please find the final AOC For RIFS in the above-captioned matter. I have also sent the original AOC to Mr. Danzig. Once again, thank you for your assistance throughout this negotiations process.

The AOC will be effective upon your receipt of same.

Again, thank you for your cooperation.

Sincerely,

Carl Howard
Assistant Regional Counsel

Enc.

Allen Danzig, Esq. - w/ attach.

mailed at OCT 4, 1999
+ received by SWS
on OCT 6, 1999
↓
effective date pursuant
to graph # 93.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

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IN THE MATTER OF
THE UNITED STATES AVENUE BURN SITE
ROUTE 561 DUMP SITE
AND HILLIARD'S CREEK

The Sherwin-Williams Company

Respondent

Index No. II CERCLA-02-99-2035

Proceeding under Sections 104 and
122 of the Comprehensive Environ-
mental Response, Compensation and
Liability Act, as amended, 42 U.S.C.
§§ 9604, 9622.
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ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL
INVESTIGATION/FEASIBILITY STUDY

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ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL
INVESTIGATION/FEASIBILITY STUDY

I. INTRODUCTION

This Administrative Order on Consent ("Consent Order" or "Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and the above-captioned Respondent (hereinafter, "Respondents", whether single or multiple). The Consent Order concerns the preparation and performance of a remedial investigation and feasibility study (hereinafter, the "the RI/FS") concerning the United States Avenue Burn Site, Route 561 Dump Site and adjacent areas, including, but not limited to, Hilliard's Creek (hereinafter, the "Sites") in and around the Town of Gibbsboro, Camden County, New Jersey. This Consent Order also concerns reimbursement by Respondents to EPA for certain costs which will be incurred by EPA in connection with the RI/FS.

II. JURISDICTION

1. This Consent Order is issued to Respondents pursuant to the authority vested in the President of the United States under Sections 104(a) and (b), 122(a) and (d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9604(a) and (b), 9622(a) and (d)(3), which authority was delegated to the Administrator of EPA on January 23, 1987 by Executive Order 12580, 52 Fed. Reg. 2926 (1987), and further delegated to the Regional Administrators of EPA on September 13, 1987, by EPA Delegation 14-14-C.

2. Respondents agree to undertake all actions required by the terms and conditions of this Consent Order. Respondents consent to and agree not to contest the authority or jurisdiction of the Regional Administrator of EPA Region II to issue or enforce this Consent Order, and also agree not to contest the validity or terms of this Consent Order in any action to enforce its provisions.

III. PARTIES BOUND

3. This Consent Order shall apply to and be binding upon the Respondents and their successors and assigns. Respondents agree to instruct their officers, directors, employees and agents involved in the performance of the work required under this Order to cooperate in carrying out the obligations of Respondents under this Order. Respondents agree that their officers, directors, employees and agents involved in the performance of the work required by this Order shall take all necessary steps to

accomplish the performance of said work in accordance with this Order. Respondents are jointly and severally responsible for carrying out all actions required of them by this Consent Order. The individual signatories to this Consent Order each certify that he/she is authorized to execute and legally bind the Respondent he/she represents to this Consent Order. No change in the ownership or corporate status of Respondents or of their facilities or the Sites shall alter Respondents' responsibilities under this Consent Order.

4. Respondents shall provide a copy of this Consent Order to any subsequent owners or successors before ownership rights or stock or assets in a corporation are transferred. Respondents shall provide a copy of this Consent Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Consent Order, within fourteen (14) days after the effective date of this Consent Order or the date of retaining their services, whichever is later. Respondents shall condition any such contracts upon satisfactory compliance with this Consent Order. Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Consent Order and for ensuring that their employees, contractors, consultants, subcontractors and agents comply with this Consent Order.

IV. STATEMENT OF PURPOSE

5. In entering into this Consent Order, the objectives of EPA and the Respondents are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by any release or threatened release of hazardous substances, pollutants, or contaminants in connection with the Sites, by conducting a remedial investigation ("RI"); (b) to determine and evaluate, through the conduct of a feasibility study ("FS"), alternatives for the remediation or control of any release or threatened release of hazardous substances, pollutants or contaminants, in connection with the Sites; and (c) to provide for the reimbursement to EPA of certain response costs which will be incurred by EPA with respect to the RI/FS.

6. The activities conducted under this Consent Order are subject to approval by EPA and shall provide all appropriate necessary information for the RI/FS and for a record of decision that is consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities conducted by or on behalf of Respondents

under this Consent Order shall be conducted in compliance with all applicable EPA guidance, policies, and procedures and any amendments thereto.

V. FINDINGS OF FACT AND CONCLUSIONS OF LAW

7. The Sites are located in Gibbsboro, Camden County, New Jersey. The Route 561 Dump Site includes a vacant parcel located on Route 561 near Milford/Kresson Road and the White Sand Branch which runs through the Dump Site. The United States Avenue Burn Site is situated in the vicinity of United States Avenue. The United States Avenue Burn Site includes, but is not limited to, three sources, the Burn Area, the Burn Landfill, and the Railroad Track, which are all currently vacant land.

8. The White Sand Branch (and its associated wetlands), originates at the outlet of Clement Lake, and is a stream which flows south through the Route 561 Dump Site. This stream, which loses definition as it crosses the Dump Site, reforms toward the southern end of the property, and leaves the Dump Site through a culvert which extends under Route 561. Stream banks are less than 1 foot high. The White Sand Branch and Haney Run Brook, which ultimately feed Bridgewood Lake, flow through the Burn and Landfill Areas of the United States Avenue Burn Site. The confluence of White Sand Branch and Haney Run Brook flows beneath United States Avenue and into Bridgewood Lake, and subsequently, Hilliard's, also known as Millards Creek (hereinafter "Hilliard's Creek"). Hilliard's Creek flows through the Hilliard's Creek Wildlife Refuge. The United States Fish and Wildlife Service Wetlands Inventory Maps indicate that sensitive ecosystems in and around these water bodies include palustrine forest, palustrine emergent wetland and palustrine scrub/shrub areas. The Federal Emergency Management Agency's Flood Insurance Rate Maps indicate that the 100-year flood plain encompasses the Sites. All of the surface waters in the vicinity of the Sites have been designated by NJDEP as freshwater (FW-2). One designated use of FW-2 waterbodies is "public potable water supply after such treatment as required by law or regulation".

9. Operations of a Sherwin-Williams' manufacturing facility, which was located along United States Avenue in the vicinity of the United States Avenue Burn Site, included the manufacturing of varnishes, lacquers, and paints, including dry colors, paste paints, and linseed oil liquid paints. The Route 561 Dump Site was previously used as a paint waste dump. The Route 561 Dump Site occupies approximately 2.9 acres. The Route 561 Dump Site is bounded by a strip mall to the north, Clement Lake to the east, Route 561 to the west, and a private residence to the south.

10. The Burn Area portion of the United States Avenue Burn Site was previously used to dispose of paint wastes from the manufacturing facility and the burning of it at the Burn Area. The Burn Landfill portion of the United States Avenue Burn Site was used for the storage of sludge from the former Sherwin-Williams manufacturing facility's wastewater treatment system. The Railroad Track portion of the United States Avenue Burn Site, which is currently an abandoned railroad line, was previously used by Sherwin-Williams to transport materials to and from the manufacturing facility. The Burn and Landfill Areas of the United States Avenue Burn Site occupy approximately 8 acres. The Railroad Track Area of the United States Avenue Burn Site encompasses approximately 7,200 square feet centered around the abandoned railroad track. The three sources of the United States Avenue Burn Site are located on properties east of Bridgewood Lake in Gibbsboro, NJ.

11. The Sites are located in a commercial and residential area. An estimated 250 persons live within a 0.25 mile radius of these Sites. The closest residence to the Route 561 Dump Site is adjoining the southern border of the Site. The closest residence to the United States Avenue Burn Site is directly north of the Site. The closest residence to Hilliard's Creek is directly north of Hilliard's Creek.

12. a. On June 15, 1994 representatives of the New Jersey Department of Environmental Protection (NJDEP) collected waste, soil, surface water, and sediment samples as well as a groundwater and a potable well water sample at the Route 561 Dump Site. In October 1990, the Sherwin-Williams Company signed a Consent Order ("CO") with the NJDEP requiring remedial action for five Areas of Environmental Concern, one of which included the Landfill Area of the United States Avenue Burn Site. The Sherwin-Williams Company denied responsibility for the Route 561 Dump Site in April 1993. On December 1, 1994, the NJDEP issued a Directive and Notice to Insurers to the Sherwin-Williams Company, a prior owner of the Route 561 Dump Site, requesting the cleanup and removal of discharges at the Dump Site. On February 27, 1995, NJDEP referred the Route 561 Dump Site to EPA for CERCLA removal action.

b. On May 20, 1994, representatives of NJDEP collected samples at the Burn Area of the United States Avenue Burn Site which revealed high levels of lead, cadmium, and other hazardous substances. On November 22, 1994, the NJDEP issued a Directive and Notice to Insurers to the Sherwin-Williams Company. By letter dated July 12,

1995, as revised on July 18, 1995, the NJDEP referred the Burn Site to EPA for CERCLA removal action consideration. On March 21, 1996, NJDEP requested the addition of the Landfill Area of the United States Avenue Burn Site to the July 1995 CERCLA removal requests.

- c. In a July 18, 1995, letter to EPA entitled, Removal Request Amendment, NJDEP stated "the Department has reason to suspect there may be additional satellite sites in the area similar to the Sherwin-Williams Burn Site". In this same letter the NJDEP stated "the Department wishes to expand the scope of the original removal action request to include the investigation and remediation of any additional areas of contamination which may be discovered during the EPA removal action process". On February 13, 1996, the EPA On-Scene Coordinator ("OSC") observed at least five patches of various colored surface soil staining at the Railroad Track Area of the United States Avenue Burn Site. On May 13 and 14, 1996, Sherwin-Williams' consultant sampled the Railroad Track Area to delineate the extent of contamination.

13. On November 12, 1997 EPA issued an Administrative Order on Consent for Removal Action at the Route 561 Dump Site to the Sherwin-Williams Company. These actions included measures to restrict access to certain areas of the Route 561 Dump Site and to implement certain engineering controls at the Route 561 Dump Site. Pursuant to a 1997 AOC, Sherwin-Williams stabilized or capped surface soils at the direction of EPA, enclosed the Site with a chain-link fence, and installed an intruder alarm system, including video and sound surveillance. Sherwin-Williams has been performing security surveillance on a 24 hours a day, 365 days a year basis. In September 1995, EPA entered into an Administrative Order on Consent with Sherwin-Williams to conduct an action at the Burn Area of the United States Avenue Burn Site. These actions included physically limiting with appropriate temporary barriers the migration of contaminants into surface waters, adjusting the existing fence line, and also included sampling and surveying. Sherwin-Williams completed and submitted a Report of Investigation in March, 1997. On May 1, 1997, a Unilateral Administrative Order was issued to the Sherwin-Williams Company by EPA to conduct a removal action at the Railroad Track Area of the United States Avenue Burn Site. These actions included the installation of silt fencing and other temporary barriers in conjunction with sampling and excavation of contaminated soils.

14. The United States Avenue Burn and Route 561 Dump Sites were proposed for listing on the National Priorities List (NPL) on September 29, 1998 and July 28, 1998, respectively. The NPL, codified at 40 CFR Part 300, Appendix B, has been promulgated pursuant to Section 105(8)(b) of CERCLA, 42 U.S.C. §9605(a)(8)(B).

15. a. The results of EPA's sampling and analyses at the Route 561 Dump Site indicate the presence of hazardous substances in the on-Site soil and downstream sediment samples. Contamination of 0.13 mile of wetland frontage, as well as contamination of a classified stream, was documented based upon the NJDEP and EPA sampling events.

b. Waste, soil, surface water and sediment samples were collected from numerous locations across the Burn and Landfill Areas of the United States Avenue Burn Site to characterize the extent of contamination. Inorganic hazardous substances were detected at concentrations significantly above background levels in waste, soil and sediment media sampled from the United States Avenue Burn Site (Burn and Landfill Areas). The presence of the Burn Area source within wetlands and analytical results of sediments samples collected downstream of the source, documented the actual contamination of wetlands and a sensitive environment. Two thousand tons of contaminated soil was removed from the Railroad Track Area as a result of the 1997 removal action order.

16. Sampling at the Route 561 Dump Site includes the following:

a. In June 15, 1994, the NJDEP collected waste, soil, surface water, and sediment samples as well as a groundwater and a potable well water sample from the Route 561 Dump Site. The following is a brief summary of the analytical data for those samples:

i. arsenic and lead were detected in the soil at maximum concentrations of 13,700 milligrams per kilogram (mg/kg) and 126,000 mg/kg, respectively.

ii sediment samples collected by NJDEP from the White Sand Branch indicate a progressive increase of lead concentrations from 16.6 mg/kg (upstream) to an estimate of 364 mg/kg (downstream) and arsenic concentrations from 2.4 mg/kg (upstream) to 17 mg/kg (downstream).

- iii surface water samples collected from the White Sand Branch indicate a progressive increase in lead concentrations from 3.1 µg/l (upstream) to 43.6 µg/l (downstream).
- iv NJDEP collected a groundwater sample from the potable well at the residence adjacent to the Route 561 Dump site. This sample did not contain contaminants at levels above Ground Water Quality Standards. In addition, NJDEP collected a shallow subsurface probe groundwater sample on the Site. The following is a brief summary of their findings:

- 1. arsenic, barium, cadmium, chromium, copper, nickel, lead, vanadium and zinc at concentrations of 3,790 µg/l, 6,970 µg/l, 14 µg/l, 2,520 µg/l, 2,960 µg/l, 1,440 µg/l, 37,200 µg/l, 814 µg/l and 2,730 µg/l, respectively.

- b. In August 1995, the EPA collected surface and subsurface soil, and sediment samples from the Route 561 Dump Site. The following is a brief summary of the analytical data for those samples:

- i. Arsenic, barium, cadmium, chromium, and lead were detected in soil at concentrations of 43,762 mg/kg, 44,990 mg/kg, 494 mg/kg, 11,668 mg/kg, and 131,504 mg/kg, respectively.

- c. In September 1995, using EPA's rapid bioassessment protocol II, biological sampling of the benthic macroinvertebrate community was conducted at locations in White Sand Branch. The relationship between contaminant levels and biological impairment measured in this study, does provide evidence that suggests contamination may be responsible for the biological impaired conditions found in White Sand Branch. The following is a brief summary of the analytical data for those samples:

- i. The arsenic, chromium, and lead levels were estimated at 6,100 mg/kg, 7,960 mg/kg, and 87,100 mg/kg, respectively.

- 17. As an Interim Measure, Sherwin-Williams has installed a chain link fence at the U.S. Avenue Burn Site, and conducted a removal action at the Railroad Track Area. Sampling at the United States Avenue Burn Site includes the following:

- a. In May 1996, waste and soil samples were collected from the Railroad Track Area of the United States Avenue Burn Site. The following is a brief summary of the analytical data for those samples:
- i. Total arsenic, barium, chromium, and lead concentrations in the surface soil samples as high as 79.5 mg/kg, 8220 mg/kg, 26,600 mg/kg, and 251,000 mg/kg, respectively.
 - ii Total arsenic, barium, chromium, and lead concentrations for the subsurface soil samples as high as 53.8 mg/kg, 8500 mg/kg, 14,600 mg/kg, and 66,800 mg/kg, respectively.
- b. Sampling results for the Landfill Area of the United States Avenue Burn Site from a Phase II Remedial Investigation Report, revised March 31, 1995, for the NJDEP:
- i. **Surface water sampling results:** aluminum, arsenic, iron, and lead were detected at concentrations of 3,050 µg/L, 99 µg/L, 25,100 µg/L, and 183 µg/L, respectively.
 - ii **Sediment sampling results:** In sample 007-S002 (location SSW-7), arsenic, lead, and zinc were detected at concentrations of 1,560 mg/kg, 1,270 mg/kg, and 3,020 mg/kg, respectively. In the duplicate sample 007-M102 (i.e., duplicate of sample 007-S002), silver, arsenic, cadmium, chromium, lead, and zinc were detected at concentrations of 2.6 mg/kg, 376 mg/kg, 11 mg/kg, 215 mg/kg, 2,330 mg/kg, and 9,850 mg/kg, respectively.
 - iii **Soil sampling results:** barium, cadmium, lead, and zinc were detected at concentrations of 2,040 mg/kg, 6.5 mg/kg, 2,630 mg/kg, and 6,560 mg/kg, respectively, from one soil sample (034-B001) from soil boring TB-34.
 - iv **Groundwater sampling:** Groundwater samples were collected from four monitoring wells during four rounds of groundwater sampling conducted during the Phase I and Phase II NJDEP Remedial Investigation.

1. benzene was detected at concentrations of 23 µg/L in Round I; 62 µg/L in Round II; 31 µg/L in Round III; and 34 µg/L in Round IV.
 2. xylene was detected at concentrations of 53 µg/L in Round I and 91 µg/L in Round II.
 3. pentachlorophenol was detected at concentrations of 7 µg/L (estimated) and 8 µg/L (estimated) in Round I; 9 µg/L (estimated) and 13 µg/L (estimated) in Round II; 7 µg/L (estimated) and 12 µg/L in Round III; and 5 µg/L (estimated) and 9 µg/L (estimated) in Round IV.
 4. total barium was detected at concentrations of 2.4 mg/L in Rounds III & IV; soluble results indicated elevated barium concentrations of 2.1 mg/L in Round IV.
 5. total lead concentrations ranged between 0.0235 mg/L and 1.6 mg/L in Round IV; soluble lead analysis indicated concentration of 0.023 mg/L in Round IV.
- c. In June 30, 1993 and May 20, 1994, soil samples and sediment samples collected from the Burn Area of the United States Avenue Burn Site. The following is a brief summary of the analytical data for those samples:
- i. sediment samples were taken from Haney Run on June 30, 1993. The results revealed arsenic levels as high as 1,560 ppm (duplicate sample); barium levels up to 17,600 ppm (duplicate sample); cadmium levels up to 15.6 ppm; and lead levels up to 2,330 ppm.
 - ii surface soil samples and sediment samples were taken from Haney Run Brook and White Sand Branch on May 20, 1994. The soil samples revealed antimony levels up to 41.9 ppm; arsenic levels up to 105 ppm; barium levels up to 4,800 ppm; cadmium levels up to 607 ppm; total chromium levels up to 3,000 ppm; copper levels up to 868 ppm; lead levels up to 134,000 ppm; and zinc levels up to 120,000 ppm. The sediment samples revealed arsenic levels up to 235 ppm; barium levels up to

397 ppm; cadmium levels up to 3 ppm; and lead levels up to 2,510 ppm.

18. a. On July 14, 1995, the Agency for Toxic Substances and Disease Registry ("ATSDR") issued an ATSDR Record of Activity ("AROA") for the Route 561 Dump Site. As an Interim Measure, Sherwin-Williams has installed a chain link fence and security and surveillance alarm system at the Route 561 Dump Site. In the AROA, ATSDR concluded that on-Site contaminated soils could pose a health threat to those persons who gain access to the Route 561 Dump Site. Human exposure to Route 561 Dump Site related contaminants may occur via dermal contact, inhalation of airborne dust, or inadvertent ingestion of contaminated surface soils and sediment. ATSDR provided the following information regarding the risk analysis:
 - i. Exposure to lead may cause serious adverse health effects, particularly in young children. Young children and fetuses are especially sensitive to the toxic effects of lead exposure. Lead exposure causes adverse health effects on heme biosynthesis. This effect occurs as a result of lead inhibition of enzyme activity such as aminolevulinic acid dehydratase (ALAD).
- b. On July 25, 1995, ATSDR issued an AROA for the Burn Area of the United States Avenue Burn Site. In the AROA, ATSDR concluded that soil and sediment at the Site are contaminated with metals at concentrations that pose a public health hazard. Routes of exposure to Site contaminants are by ingestion of contaminated soil or by inhalation of suspended dusts. As an Interim Measure, Sherwin-Williams erected a secure fence at this Site. Lead contamination is of particular concern because high concentrations were found in bare surface soil in areas where children may play. Sediment sampling results also indicated that contaminants have migrated off-Site and are present in sediment samples at levels of public health concern. Contact with these sediments pose an additional source of contaminant exposure.
- c. On September 20, 1996, ATSDR concluded that the levels of lead in surface soil at the Railroad Track Area of the United States Avenue Burn Site present a public health threat and recommended immediately preventing unauthorized access to the railroad track area at the United States Avenue Burn Site. As an Interim Measure,

Sherwin-Williams conducted a soil removal under EPA oversight.

19. a. Hilliard's Creek flows through the Hilliard's Creek Wildlife Refuge which consists of 56 contiguous acres with nature paths situated between Gibbsboro Road and Kirkwood Avenue in the Borough of Gibbsboro, NJ. Hilliard's Creek flows south from Silver Lake through the former Sherwin-Williams' manufacturing facility. Two tributaries lead into Hilliard's Creek. One tributary flows from a pond west of Gibbsboro Road into Hilliard's Creek while the other tributary flows into Hilliard's Creek from Bridgewood Lake situated to the east of Gibbsboro Road.
- b. On June 11, 1998, background sediment samples were collected from a section of Hilliard's Creek, located in the Hilliard's Creek Wildlife Refuge and a tributary that connects to the Hilliard's Creek. These samples were taken by consultants for the Buzby Landfill, which is located approximately one mile north of the former Sherwin-Williams' manufacturing facility. These sediment sample results revealed elevated levels of lead, chromium, arsenic, and zinc. The following is a brief summary of the analytical data for those samples:
 - i. Arsenic, cadmium, chromium, lead, mercury and zinc concentrations were detected in sediment as high as 1,110 mg/kg, 31.7 mg/kg, 13,000 mg/kg, 221,900 mg/kg, 5.4 mg/kg and 4380 mg/kg, respectively.
 - ii. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene concentrations were detected in sediment as high as 2700 µg/kg, 3200 µg/kg, 5300 µg/kg, 3600 µg/kg, 5700 µg/kg, and 5300 µg/kg, respectively.
- c. Sampling results from a NJDEP Phase IV Remedial Investigation Report submitted by Sherwin-Williams' contractor in February 1998 included results of surface water and sediment sampling along Hilliard's Creek:
 - i. **Surface water sampling results:** arsenic, barium, chromium, lead, and zinc were detected at concentrations of 89 µg/l, 150 µg/l, 11.7 µg/l, 65.5 µg/l, and 110 µg/l, respectively.
 - ii. **Sediment sampling results:** arsenic, barium, chromium, lead, and zinc were detected at

concentrations of 29.9 ppm, 1500 ppm, 17.9 ppm, 99.1 ppm, and 560 ppm, respectively.

- d. From November 10, 1998 through November 23, 1998, EPA chose to take surface and subsurface soil samples along Hilliard's Creek just south of Silver Lake through the Hilliard's Creek Wildlife Refuge up to Hilliard's Road. The following is a brief summary of the analytical data for those samples:
 - i. The surface soil samples revealed total lead levels as high as 125,000 mg/kg in Hilliard's Creek Wildlife Refuge.
 - ii. The subsurface soil samples revealed total lead levels as high as 140,000 mg/kg in Hilliard's Creek Wildlife Refuge.
- e. On August 20, 1998, NJDEP referred Hilliard's Creek to EPA for CERCLA removal action. On April 22, 1999, EPA issued a Notice of Potential Liability Pursuant to CERCLA to the Sherwin-Williams Company as a past owner and/or operator of a facility at which there has been a release or threatened release of hazardous substances which has caused EPA to incur response costs at Hilliard's Creek.

20. The above-noted Sites each constitute a "facility" within the meaning of Section 101(9) of CERCLA, 42 U.S.C. §9601(9).

21. The contaminants found at the Sites include "hazardous substance(s)" within the meaning of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). There have been and continue to be releases and/or threats of releases, within the meaning of Section 101(22) of CERCLA, 42 U.S.C. §9601(22), of hazardous substances into the environment at and from the Sites.

22. Respondents are "persons" within the meaning of Section 101(21) of CERCLA, 42 U.S.C. §9601(21). Respondent Sherwin-Williams Company is a person who owned and/or operated the Sites at the time of disposal, or arranged for disposal of the waste at the Sites, and who currently owns the Railroad Track portion of the United States Avenue Burn Site. Respondent accordingly is a responsible party under Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§9604, 9607, and 9622.

23. Respondents have been given an opportunity to discuss with EPA the basis for issuance of this Consent Order and its terms.

24. The actions required by this Consent Order are necessary to protect the public health or welfare or the environment, are in the public interest, are consistent with CERCLA and the NCP, and are expected to expedite effective remedial action and minimize litigation.

VI. NOTICE

25. By providing a copy of this Consent Order to the New Jersey Department of Environmental Protection ("NJDEP"), EPA is notifying the State of New Jersey (the "State") that this Consent Order is being issued and that EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by this Consent Order.

VII. WORK TO BE PERFORMED

26. All work performed under this Consent Order shall be under the direction and supervision of qualified personnel. Within fourteen (14) days of the effective date of this Consent Order, Respondents shall provide written notice to EPA of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories, to be used in carrying out such work. The qualifications of the persons undertaking the work for Respondents shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. The Consent Order is contingent upon Respondents' demonstration to EPA's satisfaction that Respondents are qualified to perform properly and promptly the actions set forth in the Consent Order. If EPA disapproves, in writing, of any person(s)' technical qualifications, Respondents shall notify EPA of the identity and qualifications of the replacement(s) within fourteen (14) days of the written notice. If EPA subsequently disapproves of the replacement(s), EPA reserves the right to terminate this Order and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondents. During the course of the RI/FS, Respondents shall notify EPA in writing of any changes in or additions to the personnel used to carry out such work, and provide their names, titles, and qualifications. EPA shall have the right to approve changes in and additions to personnel.

27. Respondents shall conduct the work required hereunder in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01) (hereinafter, the "RI/FS Guidance"), guidance referenced therein, as may be amended or modified by EPA, and the Statement of Work ("SOW"), attached hereto as Appendix 1 which will be deemed to be incorporated by

reference herein. The activities and deliverables identified below shall be developed as provided for in the SOW and shall be submitted to EPA. All work performed under this Consent Order shall be in accordance with the schedules herein, and in full accordance with the schedules, standards, specifications, and other requirements of the SOW, RI/FS Work Plan and Field Operations Plan, as approved by EPA, and as they may be amended or modified by EPA prior to completion of the RI/FS. For purposes of this Consent Order, day means calendar day unless otherwise noted in this Consent Order.

a. Task I: Scoping. As part of the scoping activities, Respondents shall provide EPA with the following deliverables:

1. RI/FS Work Plan and Field Operations Plan. Within forty-five (45) days of the effective date of this Consent Order, Respondents shall submit to EPA a draft RI/FS Work Plan and Field Operations Plan ("FOP") for review and approval. The RI/FS Work Plan shall provide for the collection of all data needed for performing the RI/FS. The RI/FS Work Plan shall include a description of the work to be performed and the schedule for the RI/FS. The schedule shall provide for completion of the RI/FS for the Sites within 18 months of EPA approval of the RI/FS Work Plan, unless otherwise agreed. The Work Plan shall comply with CERCLA and relevant EPA guidance, including, "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive No. 9355.3-01) (hereinafter, the "RI/FS Guidance"), "Guidance for Data Usability in Risk Assessment" (OSWER Directive #9285.7-05) and guidances referenced therein, as they may be amended or modified by EPA. The FOP shall consist of a Field Sampling and Analysis Plan ("FSAP"), a Quality Assurance Project Plan ("QAPP"), and a Health and Safety Plan ("HSP") as described in EPA guidance. If EPA disapproves or requires revisions to the RI/FS Work Plan and/or FOP, in whole or in part, Respondents shall amend and submit to EPA a revised plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

A. The FSAP shall include:

- i. Site background;
- ii. Sampling objectives;
- iii. Sample locations and frequencies, including a map depicting sampling locations, and the rationale for each location;

- iv. Sample designation;
- v. Sampling equipment and procedures; and
- vi. Sample handling and analysis.

B. The QAPP shall include, but not be limited to, the following items:

A Quality Assurance/Quality Control Plan (QAPP), which shall be prepared consistent with "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5, October 1998), and which shall include the following elements:

1. A detailed description of the sampling, analysis, and monitoring that shall be performed during the RI/FS phase, consistent with this Statement of Work ("SOW"), and this Order.
2. All sampling, analysis, data assessment, and monitoring shall be performed in accordance with the "Region II CERCLA Quality Assurance Manual," Revision 1, EPA Region 2, dated October 1989, and any updates thereto, or an alternate EPA-approved test method, and the guidelines set forth in this Order. All testing methods and procedures shall be fully documented and referenced to established methods or standards.
3. The QAPP shall also specifically include the following items:
 - a. An explanation of the way(s) the sampling, analysis, testing, and monitoring will produce data for the RI/FS phase;
 - b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;
 - c. A map depicting sampling locations; and
 - d. A schedule for performance of specific tasks.
4. In the event that additional sampling locations, testing, and analyses are utilized or required,

Respondents shall submit to EPA an addendum to the QAPP for approval by EPA.

5. The QAPP shall address the following elements:

Project Management

- a. Title and Approval Sheet
- b. Table of Contents and Document Control Format
- c. Distribution List
- d. Project/Task Organization and Schedule
- e. Problem Definition/Background
- f. Project/Task Description
- g. Quality Objectives and Criteria for Measurement Data
- h. Special Training Requirements/Certification
- i. Documentation and Records

Measurement/Data Acquisition

- j. Sampling Process Design
- k. Sampling Methods Requirements
- l. Sample Handling and Custody Requirements
- m. Analytical Methods Requirements
- n. Quality Control Requirements
- o. Instrument/Equipment Testing, Inspection, and Maintenance Requirements
- p. Instrument Calibration and Frequency
- q. Inspection/Acceptance Requirements for Supplies and Consumables
- r. Data Acquisition Requirements (Non-Direct Measurements)
- s. Data Management

Assessment/Oversight

- t. Assessments and Response Actions
- u. Reports to Management

Data Validation and Usability

- v. Data Review, Validation, and Verification Requirements
- w. Validation and Verification Methods
- x. Reconciliation with Data Quality Objectives

6. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Respondents shall ensure the following:

- a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and guidance, including the "Region II CERCLA Quality Assurance Manual," Revision 1, EPA Region 2, dated October 1989, and any updates thereto, and the guidelines set forth in this Order.
- b. The laboratory to be used must be specified. If the laboratory participates in the Contract Laboratory Program (CLP) for the analysis to be performed for this investigation, then project specific Performance Evaluation (PE) samples will not be required, as CLP laboratories run EPA PEs on a quarterly basis. If the proposed laboratory does not participate in the CLP for the analyses required, PE samples must be analyzed to demonstrate the capability to conduct the required analysis prior to being approved for use. Once a non-CLP laboratory has been selected, the laboratory should submit a copy of their Laboratory Quality Assurance Program Plan (LQAPP) to EPA for review and approval.

For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-site screening analyses, Respondents must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" form for each non-Contract Laboratory Program (CLP) laboratory utilized during a sampling event, within thirty (30) days after acceptance of the analytical results. Upon completion, such documents shall be submitted to the EPA Project Coordinator, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator
USEPA Region 2
Division of Environmental Science &
Assessment
2890 Woodbridge Avenue, Bldg. 209, MS-215
Edison, NJ 08837

- c. The laboratory utilized for analyses of samples must perform all analyses according to accepted EPA methods as documented in the

"Contract Lab Program Statement of Work for Organic Analysis, (OLM04.2)" or the latest revision, and the "Contract Lab Program Statement of Work for Inorganic Analysis, (ILM04.0) " or the latest revision, or other EPA approved methods.

- d. Unless indicated otherwise in the approved QAPP, upon receipt from the laboratory, all data will be validated.
- e. Submission of the validation package (checklist, report and Form Is containing the final data) to EPA, prepared in accordance with the provisions of Subparagraph g., below.
- f. Assurance that all analytical data that are validated as required by the QAPP are validated according to the procedures stated in the "EPA Region II Contract Lab Program Organics Data Review and Preliminary Review (SOP #HW-6, Revision 11)," dated June 1996, or the latest revision, and the "Evaluation of Metals Data for the Contract Laboratory Program (SOP #HW-2, Revision 11)," dated January 1992 or the latest revision, or EPA-approved equivalent procedures. Region 2 Standard Operating Procedures are available at: <http://www.epa.gov/region02/smb/sops.htm>
- g. Unless indicated otherwise in the QAPP, Respondents shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon the EPA's request, Respondents shall submit to the EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.
- h. Respondents shall insert a provision in its contract(s) with the laboratory utilized for analyses of samples, which will require granting access to EPA personnel and authorized representatives of the EPA for the purpose of ensuring the accuracy of laboratory results related to the Site

C. Health and Safety Plan. The HSP shall conform to 29 CFR \$1910.120, "OSHA Hazardous Waste Operations Standards," and the EPA guidance document, "Standard Operating Safety Guidelines" (OSWER, 1988).

2. Following approval or modification by EPA, the RI/FS Work Plan and FOP shall be deemed to be incorporated into this Consent Order by reference.

b. Task II: Community Relations Plan. EPA will develop a Site-specific community relations plan and make revisions to this plan as necessary and in accordance with EPA guidance and the NCP. To the extent requested by EPA, Respondents shall provide information supporting EPA's community relations programs.

c. Task III: Site Characterization. Following EPA's written approval or modification of the RI/FS Work Plan and FOP, Respondents shall implement the provisions of the RI/FS Work Plan and the FOP to characterize the nature, quantity, and concentrations of hazardous substances, pollutants, or contaminants in connection with the Sites. Respondents shall provide EPA with validated analytical data within forty-five (45) days of each sampling activity, in the electronic format required by EPA at the time of submission, showing the location, medium and results. Within seven (7) days of completion of field activities, Respondents shall so advise EPA in writing. Within thirty (30) days of submission to EPA of the final set of validated field data, Respondents shall submit to EPA a Site Characterization Summary Report. Within fourteen (14) days after Respondents' submittal of the Site Characterization Summary Report, Respondents shall make a presentation to EPA and the State on the findings of the Site Characterization Summary Report and discuss EPA's and the State's preliminary comments and concerns associated with the Site Characterization Summary Report. If EPA disapproves of or requires revisions to the Site Characterization Summary Report, in whole or in part, Respondents shall amend and submit to EPA a revised Site Characterization Summary Report which is responsive to the directions in all of EPA's written comments within twenty-one (21) days of receipt of EPA's comments.

d. Task IV: Identification of Candidate Technologies. An Identification of Candidate Technologies Memorandum shall be submitted by Respondents within thirty (30) days of Respondents' submission to the EPA of the last set of validated analytical results. The candidate technologies identified shall include innovative treatment technologies

(as defined in the RI/FS Guidance) where appropriate. If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, in whole or in part, Respondents shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which is responsive to the directions in all EPA comments, within fourteen (14) days of receiving EPA's written comments.

e. Task V: Treatability Studies. At EPA's request, Respondents shall conduct treatability studies, except where Respondents can demonstrate to EPA's satisfaction that they are not needed. The major components of the treatability studies should include a determination of the need for and scope of studies, the design of the studies, and the completion of the studies.

If requested by EPA to undertake treatability studies, Respondents shall provide EPA with the following deliverables:

1. Treatability Testing Statement of Work. If EPA determines that treatability testing is required and so notifies Respondents, Respondents shall, within fourteen (14) days thereafter, submit to EPA a Treatability Testing Statement of Work.
2. Treatability Testing Work Plan. Within thirty (30) days of submission of the Treatability Testing Statement of Work, Respondents shall submit a Treatability Testing Work Plan, including a schedule. Upon its approval by EPA, said schedule shall be deemed incorporated into this Order by reference. If EPA disapproves of or requires revisions to the Treatability Testing Work Plan, in whole or in part, Respondents shall amend and submit to EPA a revised Treatability Testing Work Plan which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.
3. Treatability Study QAPP, FSAP, and HSP. Within thirty (30) days of the identification by EPA of the need for a separate or revised QAPP, HSP, and/or FSAP, Respondents shall submit to EPA a revised QAPP, HSP and/or FSAP, as appropriate. If EPA disapproves of or requires revisions to the revised QAPP, HSP, and/or FSAP, in whole or in part, Respondents shall amend and submit to EPA a revised treatability study QAPP, HSP, and/or FSAP, which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

4. Treatability Study Evaluation Report. Within thirty (30) days of completion of any treatability testing, Respondents shall submit a Treatability Study Evaluation Report to EPA. If EPA disapproves of or requires revisions to the Treatability Study Evaluation Report, in whole or in part, Respondents shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to the directions in all EPA comments, within twenty-one (21) days of receiving EPA's comments.

f. Task VI: Baseline Risk Assessment. Respondents will prepare a Baseline Risk Assessment for the Sites which shall be incorporated by the Respondents into the RI. Respondents shall provide EPA with the following deliverables:

1. Human Health Risk Assessment.

A. Actual and potential risks to human health shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidances including, but not limited to, the RI/FS Guidance, "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04) and the definitions and provisions of "Risk Assessment Guidance for Superfund," Volume 1, "Human Health Evaluation Manual," (December 1989) (EPA/540/1-89/002), or any updates there to, including Parts A, B and D.

B. Representative contaminants and associated concentrations for the human health risk assessment shall be determined utilizing all currently available analytical data and data generated during the RI/FS.

C. A List of Hazardous Substances Present and Proposed Contaminants of Concern shall be included with the Site Characterization Summary Report. The Site Characterization Summary Report shall list the hazardous substances present in groundwater, in soils, in sediment, in surface water and the contaminants of concern ("COCs") as described in the Risk Assessment Guidance for Superfund. If EPA disapproves of or requires revisions to the Site Characterization Summary Report, in whole or in part, Respondents shall amend and submit to EPA a revised Site Characterization Summary Report which is responsive to the directions in all of EPA's written comments within twenty-one (21) days of receipt of EPA's comments.

D. Memorandum on Exposure Scenarios and Assumption. Within 30 days of submitting the Site Characterization Summary Report, or if revisions are required based on EPA's comments, within 30 days of submitting the revised Site

Characterization Summary Report, Respondents shall submit a memorandum describing the exposure scenarios and assumptions, taking into account for the baseline human health risk assessment the present and reasonably anticipated future use of the Sites. If EPA disapproves of or requires revisions to the memorandum, in whole or in part, which disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a revised memorandum which is responsive to the directions in all EPA comments, within 14 days of receiving EPA's comments.

E. Toxicological and Epidemiological Studies Memorandum.

Within 30 days of submitting the Site Characterization Summary Report, Respondents shall submit a list of the toxicological and epidemiological studies that will be used to perform the toxicity assessment for chemicals lacking EPA toxicity values. If EPA disapproves of or requires revisions to the toxicological and epidemiological studies memorandum, in whole or in part, which disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a revised memorandum which is responsive to the directions in all EPA comments, within 14 days of receiving EPA's comments.

F. Baseline Human Health Risk Assessment Section of the RI Report. Within 45 days of submitting the revised or EPA-approved memoranda on exposure scenarios and assumptions and models, and toxicological and epidemiological studies, Respondents shall submit to EPA a baseline human health risk assessment section for inclusion in the RI report. If EPA disapproves of or requires revisions to the section, in whole or in part, which disapproval or required revision shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a revised report which is responsive to the directions in all EPA comments, within 30 days of receiving EPA's comments. The approved baseline report shall be incorporated into the RI report.

G. Fate and Transport Model Memorandum. Within 45 days of the effective date of this Order, Respondents shall submit a memorandum on fate and transport models. This memorandum

shall detail how a three dimensional (3-D) groundwater flow and contaminant transport model will be developed to depict effects of the Sites contaminants within the groundwater flow regime of the Sites. If EPA disapproves of or requires revisions to the memorandum, in whole or in part, Respondents shall amend and submit to EPA a revised memorandum which is responsive to the directions in all EPA comments, within 14 days of receiving EPA's comments. The results of this modeling effort shall be included in the RI/FS Report.

2. Ecological Risk Assessment. Actual and potential ecological risks shall be identified and characterized in accordance with CERCLA, the NCP, and EPA guidances including, but not limited to, "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments," (1997) (EPA/540-R-97-006). Within 45 days of submitting the revised or EPA-approved memoranda on exposure scenarios and assumptions and models, and toxicological and epidemiological studies, Respondents shall submit to EPA a baseline ecological risk assessment section for inclusion in the RI report. If EPA disapproves of or requires revisions to the updated ecological assessment, in whole or in part, which disapproval or required revisions shall be provided in writing with reasons for the disapproval or directions for revisions to make the submittal approvable, Respondents shall amend and submit to EPA a revised, updated ecological assessment which is responsive to the directions in all EPA comments, within 21 days of receiving EPA's comments.

g. Task VII: Remedial Investigation Report. Within thirty (30) days after the Site Characterization Presentation (Task III), Respondents shall submit to EPA a draft RI report consistent with the RI/FS Work Plan and FOP and the RI/FS Guidance. If EPA disapproves of or requires revisions to the RI report, in whole or in part, Respondents shall amend and submit to EPA a revised RI report which is responsive to the directions in all EPA's written comments, within thirty (30) days of receiving EPA's comments. Respondents may invoke the Dispute Resolution procedures set forth in Section XVII below in the event of a dispute between Respondents and EPA regarding EPA's disapproval of or required revisions to the RI report.

h. Task VIII: Development of Remedial Action Objectives, and Development and Screening of Alternatives. Respondents shall develop remedial action objectives and develop and

screen remedial alternatives. Within thirty (30) days after EPA's approval of the Baseline Risk Assessment or within thirty (30) days after EPA's approval of Respondents' Treatability Study Evaluation Report (if treatability studies are undertaken), whichever is later, Respondents shall make a presentation to EPA and the State during which Respondents shall identify the remedial action objectives and summarize the development and preliminary screening of remedial alternatives. Respondents shall address any written and oral comments made by EPA during this presentation in the FS Report.

i. Task IX: Draft Feasibility Study Report. Within thirty (30) days of the Task VIII presentation to EPA, Respondents shall submit to EPA a draft FS report which reflects the findings in the approved Baseline Risk Assessment. Respondents shall refer to the RI/FS Work Plan and the RI/FS Guidance for report content and format. Within fourteen (14) days of submitting the draft FS report, Respondents shall make a presentation to EPA and the State at which Respondents shall summarize the findings of the draft FS report and discuss EPA's and the State's preliminary comments and concerns associated with the draft FS report. If EPA disapproves of or requires revisions to the draft FS report, in whole or in part, Respondents shall amend and submit to EPA a revised draft FS report which is responsive to the directions in EPA's comments, within twenty-one (21) days of receiving EPA's written comments. Respondents may invoke the Dispute Resolution procedures set forth in Section XVII below in the event of a dispute between Respondents and EPA regarding EPA's disapproval of or required revisions to the FS report.

28. EPA reserves the right to comment on, modify and direct changes for all deliverables. Respondents must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables.

29. Respondents shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: RI/FS Work Plan, FOP, Baseline Risk Assessment, Treatability Testing Work Plan, and Treatability Study FSAP and QAPP (if treatability study work is required to be undertaken). While awaiting EPA approval of these deliverables, Respondents shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth in this Consent Order.

30. For all remaining deliverables not mentioned in paragraph 29 above, Respondents shall proceed with all subsequent tasks, activities and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondents from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS.

31. In the event that Respondents amend or revise a report, plan or other submittal upon receipt of EPA comments, if EPA in its discretion subsequently disapproves of the revised submittal or any portion thereof, or if subsequent submittals do not fully reflect EPA's directions for changes, EPA retains the right in its sole discretion to seek stipulated or statutory penalties, perform its own studies, complete the RI/FS (or any portion of the RI/FS) under CERCLA and the NCP, and seek reimbursement from the Respondents and/or other potentially responsible parties for its costs; and/or seek any other appropriate relief.

32. In the event that EPA takes over some of the tasks, but not the preparation of the RI and FS reports, Respondents shall incorporate and integrate information supplied by EPA into the final RI and FS reports.

33. Neither the failure of EPA to expressly approve, or disapprove of Respondents' submissions, nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondents' deliverables, Respondents are responsible for preparing deliverables that are in accordance with CERCLA, NCP and EPA guidance, including, but not limited to, RI/FS guidance.

34. Respondents shall assure that all work performed, samples taken and analyses conducted conform to the requirements of the RI/FS Work Plan, the EPA-approved QAPP and guidance identified therein. Respondents shall assure that field personnel used by Respondents are properly trained in the use of field equipment and in chain of custody procedures.

35. All materials removed from the Sites shall be disposed of or treated at a facility in accordance with Section 121(d)(3) of CERCLA, 42 U.S.C. Section 9621(d)(3), and the NCP. All disposal of materials conducted by the Respondents pursuant to performing this Order shall comply with all provisions of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6901 et seq., the Toxic Substances Control Act ("TSCA"), 15 U.S.C. §2601 et seq., all regulations promulgated pursuant to both RCRA and TSCA, and all applicable state laws and regulations.

a. Respondents shall, prior to any off-Site shipment of hazardous substances from the Sites to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Project Coordinator of such shipment of hazardous substances. However, the notification of shipments shall not apply to any such off-Site shipments when the total volume of such shipments does not exceed 10 cubic yards.

b. The notification shall be in writing, and shall include the following information, where available: (1) the name and location of the receiving facility to which the hazardous substances are to be shipped; (2) identification of permits and licenses held by the receiving facility for the treatment, storage and disposal of the hazardous wastes from the Sites; (3) the type and quantity of the hazardous substances to be shipped; (4) the expected schedule for the shipment of the hazardous substances; and (5) the method of transportation. Respondents shall notify the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

c. The identity of the receiving facility and state to which any hazardous substances from the Sites will be shipped will be determined by Respondents following the award of the contract for the RI/FS. Respondents shall provide all relevant information, including information under the categories noted in subparagraph a, above, on the off-Site shipments, as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

VIII. NOTIFICATION AND REPORTING REQUIREMENTS

36. All reports and other documents submitted by Respondents to EPA (other than the monthly progress reports referred to below) which document Respondents' compliance with the terms of this Consent Order shall be signed by a responsible corporate official(s) of one or more of the Respondents or by the Project Coordinator who has been delegated this responsibility by the Respondents and whose qualifications have been found by EPA to be acceptable, pursuant to paragraph 47 of this Order. Notwithstanding such a delegation of responsibility, Respondents shall remain liable for the proper performance of the work required by this Order. For purposes of this Consent Order, a responsible corporate official is an official who is in charge of a principal business function.

37. Until the termination of this Consent Order, Respondents shall prepare and provide EPA with written monthly progress reports which: (1) describe the actions which have been taken toward achieving compliance with this Consent Order during the previous month; (2) include all results of sampling, tests, modeling and all other data (including raw data) received or generated by or on behalf of Respondents during the previous month in the implementation of the work required hereunder; (3) describe all actions, data and plans which are scheduled for the next two months and provide other information relating to the progress of work as is customary in the industry; (4) include information regarding percentage of completion, all delays encountered or anticipated that may affect the future schedule for completion of the work required hereunder, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to EPA by Respondents by the fifteenth (15) day of every month following the effective date of this Consent Order.

38. Upon the occurrence of any event, during performance of the work required under this Order, that requires reporting to the National Response Center pursuant to Section 103 Of CERCLA, Respondents shall, within twenty-four (24) hours of the time when Respondent knew of, or should have known of, the event, orally notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Team Leader of the New Jersey Projects/State Coordination Team of the Emergency and Remedial Response Division of EPA Region II), in addition to the reporting required by Section 103 of CERCLA. Within twenty (20) days of the time when Respondent knew of, or should have known of, the event, Respondent shall furnish EPA with a written report setting forth the events which occurred and the measures taken, and to be taken, in response thereto.

39. All work plans, reports, notices and other documents required to be submitted to EPA under this Consent Order shall be sent by certified mail, return receipt requested, to the following addressees:

7 copies: (including 1 un-bound copy)	Chief, New Jersey Remediation Branch Emergency and Remedial Response Division United States Environmental Protection Agency 290 Broadway, 19th floor New York, New York 10007-1866
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Attention: Mr. Emmet Keveney, U.S. Ave. Burn &
Route 561 Dump Superfund Sites Project Coordinator

1 copy: Chief, New Jersey Superfund Branch
Office of Regional Counsel
United States Environmental Protection Agency
290 Broadway, 16th floor
New York, New York 10007-1866

Attention: Mr. Carl Howard, U.S. Ave. Burn & Route
561 Dump Superfund Sites Attorney

5 copies: New Jersey Department of Environmental Protection
Bureau of Federal Case Management
Division of Responsible Party Site Remediation
Attn: U.S. Ave. Burn & Route 561 Dump Superfund
Sites Case Manager
401 East State Street, Floor 5
P.O. Box 028
Trenton, New Jersey 08625-0028

40. Respondents shall give EPA at least fourteen (14) days advance notice of all field work or field activities to be performed by Respondents pursuant to this Consent Order.

IX. MODIFICATION OF THE WORK PLAN

41. If at any time during the RI/FS process, Respondents identify a need for additional data, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within twenty (20) days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondents and whether it will be incorporated into reports and deliverables.

42. If Respondents discover, or should have discovered, a condition posing an immediate threat to human health or welfare or the environment, Respondents shall notify EPA and NJDEP immediately. In the event of unanticipated or changed circumstances at the Sites, Respondents shall notify the EPA Project Coordinator (or, in the event of the unavailability of the EPA Project Coordinator, the Team Leader of the New Jersey Projects/State Coordination Team of the Emergency and Remedial Response Division of EPA Region II) by telephone within twenty-four (24) hours of discovery of the unanticipated or changed circumstances. In addition to the authorities in the NCP, in the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan and/or FOP, EPA will modify or amend or direct Respondents to modify or amend the RI/FS Work Plan and/or FOP in writing accordingly. Respondents shall implement the RI/FS Work Plan and/or FOP as modified or amended.

43. EPA may determine that in addition to tasks defined in the initially-approved RI/FS Work Plan, other additional work may be necessary to accomplish the objectives of the RI/FS. EPA may require, pursuant to this Order, that the Respondents perform these response actions in addition to those required by the initially-approved RI/FS Work Plan, including any approved modifications, if EPA determines that such actions are necessary for a complete RI/FS. EPA shall provide a letter regarding the work that shall be required. Subject to EPA resolution of any dispute pursuant to Section XVII, Respondents shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct the work itself at any point, to seek reimbursement for the costs associated with the work from Respondents, and/or to seek any other appropriate relief.

X. FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT,
RECORD OF DECISION, ADMINISTRATIVE RECORD

44. EPA retains the responsibility for the release to the public of the RI and FS reports. EPA retains responsibility for the preparation and release to the public of the proposed remedial action plan and record of decision in accordance with CERCLA and the NCP.

45. EPA will provide Respondents with the final RI and FS reports (to the extent that Respondents do not already have these reports), proposed remedial action plan, and record of decision.

46. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondents shall submit to EPA documents developed during the course of the RI/FS upon which selection of the remedial action may be based. Respondents shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports, and other reports. Respondents shall additionally submit any previous studies, conducted under state, local or other federal authorities relating to selection of the response action and all communications between Respondents and state, local or other federal authorities concerning selection of the response action. Respondents can request that additional documents be placed in the Administrative Record. Copies of these documents will be provided by the Respondents.

XI. PROJECT COORDINATORS, OTHER PERSONNEL

47. EPA has designated the following individual as its Project Coordinator with respect to the Sites:

Mr. Emmet Keveney
New Jersey Projects/State Coordination Team
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, NY 10007-1866
(212) 637-3916

No later than seven (7) days after the effective date of this Consent Order, Respondents shall select their own Project Coordinator and shall notify EPA in writing of the name, address, qualifications, job title and telephone number of that Project Coordinator. He or she shall have technical expertise sufficient to adequately oversee all aspects of the work contemplated by this Consent Order. Respondents' and EPA's Project Coordinators shall be responsible for overseeing the implementation of this Consent Order and shall coordinate communications between EPA and Respondents. EPA and Respondents may change their respective Project Coordinators. Such a change shall be accomplished by notifying the other party in writing at least ten (10) days prior to the change where possible, and concurrently with the change or as soon thereafter as possible in the event that advance notification is not possible.

48. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the NCP. In addition, EPA's Project Coordinator shall have the authority, consistent with the NCP, to halt any work required by this Consent Order, and to take any necessary response action when he/she determines that conditions at the Sites may present an immediate endangerment to public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Consent Order shall not be cause for the stoppage or delay of work.

49. All activities required of Respondents under the terms of this Consent Order shall be performed only by qualified persons possessing all necessary permits, licenses, and other authorizations required by applicable law.

XII. OVERSIGHT

50. During the implementation of the requirements of this Consent Order, Respondents and their contractors and subcontractors shall be available for such conferences and

inspections with EPA as EPA may determine are necessary for EPA to adequately oversee the work being carried out and/or to be carried out.

51. Respondents and their employees, agents, contractors and consultants shall cooperate with EPA in its efforts to oversee Respondents' implementation of this Consent Order.

XIII. SAMPLING, ACCESS AND DATA AVAILABILITY/ADMISSIBILITY

52. If any area to which access is necessary to perform work under this Consent Order is owned in whole or in part by parties other than those bound by this Consent Order, Respondents shall obtain, or use their best efforts to obtain, access agreements from the present owner(s) within thirty (30) days of the effective date of this Consent Order. Such agreements shall provide access for EPA, its contractors and oversight officials, NJDEP and its contractors, and the Respondents or their authorized representatives, and agreements for such access shall specify that Respondents are not EPA's representative with respect to liability associated with the Sites activities. Copies of such agreements shall be provided to EPA upon request prior to Respondents' initiation of field activities. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA if it is unable to obtain access. EPA may, in its sole discretion, obtain access for Respondents, perform those tasks or activities with EPA contractors, or terminate this Consent Order in the event that Respondents cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate this Consent Order, Respondents shall reimburse EPA for all costs incurred in performing such activities and shall perform all other activities not requiring access to the given property. Respondents additionally shall integrate the results of any such tasks undertaken by EPA into their reports and deliverables. Furthermore, Respondents agree to indemnify the United States as specified in paragraph 91 of this Consent Order. Respondents also shall reimburse EPA pursuant to paragraph 77 for all costs and attorney fees incurred by the United States in its efforts to obtain access for Respondents.

53. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Sites and off-Site areas where work, if any, is being performed, for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Sites or Respondents and their contractor pursuant to this Consent Order; reviewing the progress of the Respondents in carrying out the terms of this

Consent Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondents. Respondents agree to provide EPA and its designated representatives with access to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to work undertaken in carrying out this Consent Order. All parties with access to the Sites under this paragraph shall comply with all approved health and safety plans.

54. All data, records, photographs and other information created, maintained or received by Respondents or their agents, contractors or consultants in connection with implementation of the work under this Consent Order, including but not limited to contractual documents, quality assurance memoranda, raw data, field notes, laboratory analytical reports, invoices, receipts, work orders and disposal records, shall, without delay, be made available to EPA on request. EPA shall be permitted to copy all such documents and other items. Similarly, EPA will make available to Respondents, validated data generated by EPA.

55. Upon request by EPA, or its designated representatives, Respondents shall provide EPA or its designated representatives with duplicate and/or split samples of any material sampled in connection with the implementation of this Consent Order, or allow EPA or its designated representatives to take such duplicate or split samples.

56. Respondents may assert a claim of business confidentiality under 40 C.F.R. § 2.203, covering part or all of the information submitted to EPA pursuant to the terms of this Consent Order, provided such claim is allowed by section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA or State of New Jersey without further notice to Respondents. Respondents agree not to assert confidentiality claims with respect to any data related to the Sites' conditions, sampling, or monitoring.

57. Notwithstanding any other provision of this Consent Order, EPA hereby retains all of its information gathering, access and inspection authority under CERCLA, the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6991, and any other applicable statute or regulation.

58. In entering into this Consent Order, Respondents waive any objections to any data gathered, generated, or evaluated by EPA, NJDEP or Respondents in the performance or oversight of the work that has been verified according to the quality assurance/quality control (QA/QC) procedures required pursuant to this Consent Order. If Respondents object to any other data relating to the RI/FS and which is submitted in a monthly progress report in accordance with paragraph 37 herein, Respondents shall submit to EPA a report that identifies and explains their objections, describes their views regarding the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within fifteen (15) days of the monthly progress report containing the data.

XIV. OTHER APPLICABLE LAWS

59. Respondents shall comply with all laws that are applicable when performing the RI/FS. No local, state, or federal permit shall be required for any portion of the work, including studies, required hereunder which is conducted entirely on the Sites, where such work is carried out in compliance with Section 121 of CERCLA; however, Respondents must comply with the substantive requirements that would otherwise be included in such permits. For any work performed pursuant to this Consent Order which is not "on-Site", as defined in Sections 300.5 and 300.400(e) of the NCP, Respondents shall obtain all permits necessary under applicable laws and shall submit timely applications and requests for any such permits. This Consent Order is not, nor shall it act as, a permit issued pursuant to any federal or state statute or regulation.

XV. RECORD PRESERVATION

60. All records and documents in Respondents' possession that relate in any way to the Sites shall be preserved during the conduct of this Consent Order and for a minimum of ten (10) years after commencement of construction of any remedial action which is selected following the completion of the RI/FS. Respondents shall acquire and retain copies of all documents that relate to the Sites and are in the possession of its employees, agents, accountants, contractors, or attorneys. After this 10-year period, Respondents shall notify EPA at least ninety (90) days before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, Respondents shall, at no cost to EPA, give the documents or copies of the documents to EPA.

XVI. COMMUNITY RELATIONS

61. Respondents shall cooperate with EPA in providing information relating to the work required hereunder to the public. To the extent requested by EPA, Respondents shall participate in the preparation of all appropriate information disseminated to the public and make presentations at, and participate in, public meetings which may be held or sponsored by EPA to explain activities at or concerning the Sites.

XVII. DISPUTE RESOLUTION

62. Disputes concerning activities or deliverables required under this Consent Order, for which dispute resolution has been expressly provided for herein, shall be resolved as follows: if Respondents object to an EPA notice of disapproval or determination made pursuant to this Consent Order, and if the given dispute is one for which dispute resolution has been expressly provided for herein, Respondents shall notify EPA's Project Coordinator, in writing, of their objections within fourteen (14) days of receipt of the disapproval notice or determination. Respondents' written objections shall define the dispute, state the basis of Respondents' objections, and be sent to EPA by certified mail, return receipt requested. EPA and Respondents then have an additional twenty-one (21) days to reach agreement. If an agreement is not reached within the twenty-one (21) days, Respondents may, within seven (7) days of the conclusion of the aforementioned 21-day period, request a determination by the Division Director of the Emergency and Remedial Response Division, EPA Region II (hereinafter, the "Director"). Such a request by Respondents shall be made in writing. The Director's determination is EPA's final decision. Respondents shall proceed in accordance with EPA's final decision regarding the matter in dispute, regardless of whether Respondents agree with the decision. If Respondents do not agree to perform or do not actually perform the work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the work itself and seek reimbursement from the Respondents of the costs of that work, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief.

63. Respondents are not relieved of their obligations to perform and conduct activities and submit deliverables on the schedules which are approved by EPA and applicable to the work required pursuant to this Consent Order, while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay the accrual of stipulated penalties under this Consent Order. If Respondents prevail in the Dispute Resolution, no

stipulated penalties will apply with regard to the specific matter under dispute.

XVIII. DELAY IN PERFORMANCE/STIPULATED PENALTIES

64. For each day that Respondents fail to comply with any of the requirements of this Consent Order, EPA may assess, and if so, Respondents shall pay stipulated penalties in accordance with the terms below. For purposes of this paragraph, the term "fail to comply" shall include, inter alia, failure by the Respondents to submit an original or revised deliverable within the time limits set forth in or established pursuant to this Order, failure to revise a deliverable to fully conform with EPA's comments, submittal of an original deliverable of unacceptable quality which does not qualify as a bona fide submission, and failure to conduct work as required by EPA. Stipulated penalties begin to accrue on the day that performance is due or a violation occurs, and shall continue to accrue until the noncompliance is corrected, or until EPA notifies Respondents in writing that EPA is assuming responsibility for the portion of work for which penalties are accruing, whichever occurs earlier. Where a revised submission by Respondents is required by EPA, stipulated penalties shall continue to accrue until a deliverable satisfactory to EPA is produced. EPA will provide timely written notice of those violations for which EPA is assessing stipulated penalties; penalties shall, however, accrue from the day a violation commences. Payment shall be due within thirty (30) days of receipt of a demand letter from EPA, or within 30 days of completion of dispute resolution under Section XVII (should the dispute resolution procedures be timely invoked by Respondents with respect to an EPA assessment of stipulated penalties), whichever is later.

65. Respondents shall pay interest on any unpaid balance, which shall begin to accrue at the end of the 30-day period referred to in paragraph 64, above, at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

66. Respondents shall make all payments by electronic funds transfer or by forwarding a cashier's or certified check to:

EPA - Region 2
Attn: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

Checks shall identify the name of the Sites, the Sites' identification number (NJ0001120799 for the U.S. Avenue Burn Site, NJ0000453514 for the Route 561 Dump Site and NJSFN0204181 for the Hilliard's Creek Site), the account number (GE, FS and

LV), and the index number of this Order. A copy of the check and of the accompanying transmittal letter shall be sent to the first two addressees listed in paragraph 39 above.

Payment remitted via EFT shall be made to Mellon Bank, Pittsburgh, Pennsylvania as follows:

To make payment via EFT, Respondents shall provide the following information to its bank:

- Amount of Payment
- Title of Mellon Bank account to receive the payment: EPA
- Account code for Mellon Bank account receiving the payment: 9108544
- Mellon Bank ABA Routing Number: 043000261 - Name of Respondent
- Index Number : II-CERCLA-CERCLA-02-99-2035
- Site/spill identifiers: 02 - GE (U.S. Avenue Burn Site), 02 - FS (Route 561 Dump Site) and 02 - LV (Hilliard's Creek Site)

Along with this information, Respondents shall instruct their bank to remit payment in the required amount via EFT to EPA's account with Mellon Bank.

To ensure that Respondents' payments are properly recorded, Respondents shall send a letter, within one week of the EFT, which references the date of the EFT, the payment amount, the name of the Sites, the case number and Respondents' name and address to:

EPA addresses in paragraph 39 above and to:

Ron Gherardi
Chief, Financial Management Branch
US EPA
Region II
290 Broadway
New York, NY 10007

67. If Respondent fails, without prior EPA approval, to comply with any of the requirements or time limits set forth in or established pursuant to this Order, including the submittal and timely revision and resubmittal and implementation, if necessary, of all requirements pursuant to paragraphs 27, 38, 42, and 43 and timely commencement of work, and such failure is not excused by EPA, Respondent shall be liable as follows:

<u>Period of Non-compliance</u>	<u>Penalty Per Violation Per Day</u>
1st through 10th day	\$500.00
11th through 30th day	\$750.00
31st through 60th day	\$1,500.00
61st day and beyond	\$3,000.00

Respondent shall be liable to EPA for stipulated penalties in the amount of \$400 per violation for each day during which Respondent fails to comply with all other requirements of this Order.

68. Respondents may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures under Section XVII herein. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondents do not prevail upon resolution, all penalties shall be due to EPA within 30 days of resolution of the dispute. If Respondents prevail upon resolution, no penalties shall be paid.

69. In the event that EPA requires that corrections to an interim deliverable be reflected in the next deliverable, rather than requiring that the interim deliverable be resubmitted, any stipulated penalties which accrue for that interim deliverable shall cease to accrue on the date of such decision by EPA.

70. The stipulated penalties provisions of this Order do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of the Respondents' failure to comply with this Order, including but not limited to conduct of all or part of the RI/FS by EPA. Payment of stipulated penalties does not alter Respondents' obligation to complete performance under this Order.

XIX. FORCE MAJEURE

71. "Force majeure", for purposes of this Consent Order, is defined as any event arising from causes beyond the control of Respondents and of any entity controlling, controlled by, or under common control with Respondents, including their contractors and subcontractors, that delays the timely performance of any obligation under this Consent Order notwithstanding Respondents' best efforts to avoid the delay. The requirement that Respondents exercise "best efforts to avoid the delay" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or

expenses of any work to be performed under this Consent Order or the financial difficulty of Respondents to perform such work.

72. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Order, whether or not caused by a force majeure event, Respondents shall notify by telephone the EPA Project Coordinator or, in his or her absence, the Team Leader of the New Jersey Projects/State Coordination Team of the Emergency and Remedial Response Division, EPA Region II, within forty-eight (48) hours of when Respondents knew or should have known that the event might cause a delay. Within five (5) business days thereafter, Respondents shall provide in writing: the reasons for the delay; Respondents' rationale for interpreting the circumstances as constituting a force majeure event (should that be Respondents' claim); the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to mitigate the effect of the delay; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an endangerment to public health, welfare or the environment. Such written notice shall be accompanied by all available pertinent documentation including, but not limited to, third-party correspondence. Respondents shall exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the above requirements shall preclude Respondents from asserting any claim of force majeure.

73. If EPA agrees that the delay or anticipated delay is attributable to force majeure, the time for performance of the obligations under this Consent Order that are directly affected by the force majeure event will be extended for a period of time, determined by EPA, not to exceed the actual duration of the delay caused by the force majeure event. An extension of the time for performance of the obligation directly affected by the force majeure event shall not, of itself, extend the time for performance of any subsequent obligation.

74. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event or if Respondents object to the length of the extension determined by EPA pursuant to paragraph 73, above, the issue shall be subject to the dispute resolution procedures set forth in Section XVII of this Consent Order. In order to qualify for a force majeure defense, Respondents shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondents did exercise or are exercising due diligence by using their best efforts to avoid and mitigate

the effects of the delay, and that Respondents complied with the requirements of paragraph 72.

75. Should Respondents carry the burden set forth in paragraphs 71 and 74, the delay at issue shall not be deemed a violation of the affected obligation of this Consent Order.

XX. REIMBURSEMENT

76. [Intentionally left blank.]

77. Respondents hereby agree to reimburse EPA for all response costs, including oversight costs, which will be incurred by the EPA with respect to the RI/FS. EPA will periodically send billings to Respondents for the costs incurred by EPA. Those billings will be accompanied by a printout of cost data in EPA's financial management system and by a calculation of EPA's indirect costs. Respondent may request cost documentation supporting costs summarized on the billing. Respondent shall make a written request for such documentation within 7 days of receipt of the billing. Such request and review shall not extend the time for Respondent's payment. EPA's costs may include, but are not limited to, costs incurred by the EPA in overseeing Respondents' implementation of the requirements of this Order and activities performed by the EPA as part of the RI/FS and community relations, including any costs incurred while obtaining access. Such costs will include both direct and indirect costs, including but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, costs of compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, Site visits, discussions regarding disputes that may arise as a result of this Order, review and approval or disapproval of reports, costs of performing the Baseline Risk Assessment, and costs of redoing any of Respondents' tasks. Respondents shall, within thirty (30) days of receipt of each such billing, remit a cashier's or certified check for the amount of those costs, made payable to the "Hazardous Substance Superfund".

78. Respondents may invoke the Dispute Resolution procedures of Section XVII of this Consent Order with respect to payment demands submitted to Respondents by EPA under paragraph 77. However, Respondents agree to limit any disputes concerning such costs to mathematical errors and the inclusion of costs which are inconsistent with the NCP or are outside the scope of this Consent Order. Respondents shall identify any contested costs and the basis of their objection. All undisputed costs shall be remitted by Respondents in accordance with the schedule set forth above. Respondents bear the burden of establishing an EPA

mathematical error or the inclusion of costs which are inconsistent with the NCP or are outside the scope of this Consent Order.

79. Each of the payments that Respondents are required to pay shall be made by electronic funds transfer, as described in paragraph 66 above, or be mailed to the following address:

EPA - Region II
Attn: Superfund Accounting
P.O. Box 360188M
Pittsburgh, PA 15251

Checks shall include the name of the Sites, and the index number of this Consent Order. A copy of each check and of the accompanying transmittal letter shall be sent to the first two addresses listed in paragraph 39, above.

80. Respondents shall pay interest on any amounts overdue under paragraph 77. Such interest shall begin to accrue on the first day that the respective payment is overdue. Interest shall accrue at the rate of interest on investments of the Hazardous Substances Superfund, in accordance with Section 107(a) of CERCLA.

XXI. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

81. EPA reserves the right to bring an action against Respondents (and/or any other responsible parties) under Section 107 of CERCLA for recovery of all response costs incurred by the United States at the Sites that are not reimbursed by Respondents, including, but not limited to, oversight costs, all costs incurred by EPA prior to the effective date of this Order, any costs incurred in the event that EPA performs the RI/FS or any part thereof and any future costs incurred by the United States in connection with response activities conducted under CERCLA at the Sites.

82. Nothing contained in this Order shall act as a bar to, a release of, a satisfaction of, or a waiver of any claim or cause of action which EPA has at present or which EPA may have in the future against any entity, including any or all of the Respondents, on any matters relating to the Sites.

a. EPA reserves the right to bring an action against Respondents to enforce the requirements of this Consent Order, to collect stipulated penalties assessed pursuant to Section XVIII of this Consent Order, and to seek penalties

pursuant to Section 109 of CERCLA, 42 U.S.C. §9609, or any other applicable provision of law.

b. Nothing contained in this Order shall affect the right of EPA to enter into any Consent Order, or to issue any other Orders unilaterally to any or all of the Respondents (or to any other responsible parties for the Sites) pursuant to CERCLA, or to initiate a judicial action to require the performance of any additional response actions which EPA determines are necessary for the Sites.

83. Nothing in this Consent Order shall be construed to limit, in any way, EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages.

a. Nothing contained in this Order shall be construed to mean that the Respondents are the only potentially responsible parties with respect to the release and threatened release of hazardous substances at the Sites.

b. Nothing in this Order constitutes a decision by EPA on pre-authorization or on any approval of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. §9611(a)(2).

c. The Respondents waive any claim to payment under sections 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611, and 9612, against the United States or the Hazardous Substances Superfund arising out of any actions performed under the Order.

d. Nothing in this Order shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment, or to prevent, abate, or mitigate an actual or threatened release of hazardous substances on, at, or from the Sites.

84. Following satisfaction of the requirements of this Consent Order, Respondents shall have resolved their liability to EPA for the work performed by Respondents pursuant to this Consent Order. Respondents are not released from liability, if any, for any response actions taken beyond the scope of this Consent Order regarding removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA.

XXII. DISCLAIMER

85. By signing and taking actions under this Consent Order, Respondents do not admit, adopt, accept, concede, or acknowledge EPA's Findings of Fact and Conclusions of Law contained herein. Respondents reserve the right to contest such Findings of Fact and Conclusions of Law in any proceeding regarding the Sites other than an action brought by the United States, including EPA, to enforce this Order. Furthermore, the participation of Respondents in this Order shall not be considered an admission of liability and is not admissible in evidence against Respondents in any judicial or administrative proceeding other than a proceeding by the United States, including EPA, to enforce this Consent Order or a judgement relating to it. Except as otherwise provided in this Order, Respondents do not admit liability under CERCLA or any other statute or common law and any responsibility for response costs or damages thereunder, and do not, by signing this Order, waive any rights they may have. Respondents retain their rights to assert claims against other potentially responsible parties at the Sites. However, Respondents agree not to contest the validity or the terms of this Consent Order in any action brought by the United States, including EPA, to enforce its terms.

XXIII. OTHER CLAIMS

86. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any "person," as that term is defined in Section 101(21) of CERCLA, not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the Sites. Nothing herein shall constitute a finding that Respondents are the sole responsible parties with respect to the release and threatened release of hazardous substances at or from the Sites.

87. Respondents shall bear their own costs and attorney fees.

XXIV. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

88. Respondents shall establish and maintain a financial instrument or trust account or other financial mechanism acceptable to EPA (e.g., consistent with 40 C.F.R. § 264.146), funded sufficiently to perform the work and any other obligations required under this Consent Order, including a margin for cost overruns. Within fifteen (15) days after the effective date of this Consent Order, if necessary, Respondents shall fund the

financial instrument or trust account sufficiently to perform the work required under this Consent Order projected for the period beginning with the effective date of this Consent Order through the date of EPA's approval of Respondents' certification pursuant to paragraph 96, below.

89. If at any time the net worth of the financial instrument or trust account is insufficient to perform the work and other obligations under this Consent Order for the upcoming quarter, Respondents shall provide written notice to EPA within seven (7) days after the net worth of the financial instrument or trust account becomes insufficient. The written notice shall describe why the financial instrument or trust account is funded insufficiently and explain what actions have been or will be taken to fund the financial instrument or trust account adequately.

90. (a) Prior to commencement of any work under this Consent Order, Respondents shall provide evidence to EPA demonstrating that one or more of the Respondents pass the financial test described in 40 C.F.R. §264.147(f) corresponding to liability coverage in the amount of ten million dollars.

(b) For the duration of this Consent Order, Respondents shall satisfy, and shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workmen's compensation insurance for all persons performing work on behalf of Respondents, in furtherance of this Consent Order.

91. Respondents agree to indemnify and hold the United States Government, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondents, their employees, agents, servants, receivers, successors, or assignees, or any other persons acting on behalf of Respondents, including, but not limited to, firms, corporations, parent, subsidiaries and contractors, in carrying out activities under this Consent Order. The United States Government or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondents in carrying out activities under this Consent Order.

92. Neither the United States Government nor any agency thereof shall be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondents or Respondents' officers, directors, employees, agents, contractors, consultants, receivers, trustees, successors or assigns in carrying out any action or activity pursuant to this Consent Order.

XXV. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

93. After issuance, this Consent Order shall be effective on the date of receipt of a copy hereof by counsel to Respondents, or if none, by individual Respondents.

94. This Consent Order may be amended by mutual agreement of EPA and Respondents. Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to this Consent Order.

95. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Respondents will be construed as relieving Respondents of its obligation to obtain such formal approval as may be required by this Consent Order. Any deliverables, plans, technical memoranda, reports (other than progress reports), specifications, schedules and other documents required to be submitted to EPA pursuant to this Consent Order shall, upon approval by EPA, be deemed to be incorporated in and an enforceable part of this Consent Order.

XXVI. TERMINATION AND SATISFACTION

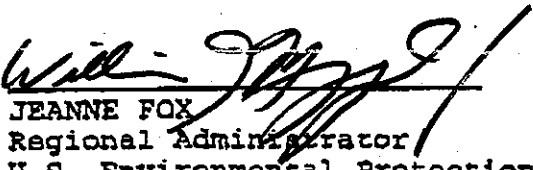
96. This Consent Order shall terminate when Respondents demonstrate in writing and certify to the satisfaction of EPA that all activities required under this Consent Order - including any additional work, payment of costs in accordance with Section XX of this Consent Order, and payment of any stipulated penalties demanded by EPA - have been performed and EPA has approved the certification in writing. This notice shall not, however, terminate Respondents' obligation to comply with any of Respondents' remaining obligations under this Consent Order, including record preservation and the payment of any costs specified in Section XX of this Consent Order which have not yet, at that time, been paid by Respondents.

97. The certification referred to in paragraph 96, above, shall be signed by a responsible official(s) representing each Respondent. Such representative shall make the following attestation:

"I certify to the best of my knowledge that the information contained in or accompanying this certification is true, accurate, and complete."

For purposes of this Consent Order, a responsible official is a corporate official who is in charge of a principal business function.

U.S. ENVIRONMENTAL PROTECTION AGENCY


JEANNE FOX
Regional Administrator
U.S. Environmental Protection Agency
Region II

9/30/99
Date

CONSENT

The Respondents identified below have had an opportunity to confer with EPA regarding this Consent Order. Respondents hereby consent to the issuance of this Consent Order and to its terms. The individuals executing this Consent Order on behalf of Respondents certify under penalty of perjury under the laws of the United States and of the State of Respondents' incorporation that he or she is fully and legally authorized to agree to the terms and conditions of this Consent Order and to bind Respondents thereto.

The Sherwin-Williams Company
NAME OF RESPONDENT

September 30, 1999
Date


(signature)

Louis E. Stellato
(typed name of signatory)

Vice President, General Counsel and Secretary
(title of signatory)

APPENDIX 1
STATEMENT OF WORK FOR
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE
UNITED STATES AVENUE BURN SITE AND ROUTE 561 DUMP SITE
GIBBSBORO, NEW JERSEY

A. INTRODUCTION

1. The purpose of this remedial investigation/feasibility study (RI/FS) is to investigate the nature and extent of contamination at the United States Avenue Burn Site, the Route 561 Dump Site and adjacent areas, including, but not limited to, Hilliard's Creek (the "Sites") and develop and evaluate potential remedial alternatives. The RI/FS will also investigate the nature and extent of contamination at other areas within the Sites, including, but not limited to, the Waste Disposal Area and the Hilliard's Creek Wildlife Refuge, and develop and evaluate potential remedial alternatives. The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies, if needed.

2. The Respondents will conduct this RI/FS and will produce a draft RI and FS report that are in accordance with this statement of work, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any other guidance that EPA uses in conducting a RI/FS, as well as any additional requirements in the administrative order. The RI/FS Guidance describes the report format and the required report content. The Respondents will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the administrative order.

3. At the completion of the RI/FS, EPA will be responsible for the selection of the Sites' remedy and will document the selection in a Record of Decision (ROD). The remedial action alternative selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report, as adopted by EPA, and the baseline risk assessment will,

with the administrative record, form the basis for the selection of the Sites' remedy and will provide the information necessary to support the development of the ROD.

4. As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of the Respondents' activities throughout the RI/FS. The Respondents will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

B. TASK 1 - SCOPING

1. The RI/FS is conducted to gather sufficient data and information necessary to characterize the nature and extent of contamination in order to support the selection of a remedy for the Sites that will reduce or eliminate risks to human health or the environment associated with contamination at the Sites.

2. The RI/FS achieves its objectives by determining the horizontal and vertical distribution and concentration of hazardous substances in the soil, in surface and ground water, building interiors, and in the air, and their association with the Sites.

3. Before planning RI/FS activities, all existing data for the Sites will be thoroughly compiled and reviewed by the Respondents. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the Sites, and past disposal practices. Data presently available includes, but may not be limited to, the following New Jersey Department of Environmental Protection (NJDEP) and EPA sampling events: For the Route 561 Dump Site: 1) waste, soil, sediment and surface water samples as well as a groundwater and a potable well water sample collected at the Route 561 Dump Site by NJDEP in June 1994; 2) surface and subsurface soil, and sediment samples collected at the Route 561 Dump Site by EPA in August 1995; and 3) sediment bioassay sampling collected by EPA in September 1995. For the United States Avenue Burn Site: Burn Area and Landfill Area: 1) soil and sediment samples collected from the Burn Area by NJDEP in May 1994; 2) surface water and sediment samples collected from the White Sand Branch and the Haney Run Brook at locations near or adjacent to the Burn Area and/or the Landfill by NJDEP in May 1994; 3) waste, surface and subsurface sediment, surface water, ground water and soil samples collected by Sherwin-Williams' consultant and split samples collected by EPA's consultant between November 1995 and December 1996 under an EPA Administrative Order on Consent; 4) sediment samples from the White Sand Branch and the Haney Run Brook at locations near or adjacent to the Burn Area and/or the Landfill by EPA in September 1995; 5) Sherwin-Williams' consultant's investigation for NJDEP

for AEC V (Landfill) between August 1991 and January 1992 and between June 1993 and October 1993; 6) groundwater samples collected in the vicinity of the former Landfill Area between August 1981 and December 1988 and between December 1991 and September 1993; 7) surface water, sediment, soil and groundwater sampling from a Phase II Remedial Investigation Report, revised March 31, 1995; and 8) Sherwin-Williams completed and submitted a Report of Investigation in March, 1997. **Railroad Track:** 1) waste and soil samples collected by Sherwin-Williams' consultant and split samples collected by EPA's consultant in May 1996 under an EPA Unilateral Administrative Order. **For the Hilliard's Creek Wildlife Refuge:** 1) sediment samples collected by the Buzby Landfill's consultant in June 1998; and 2) surface water and sediment samples submitted by Sherwin-Williams' contractor on February 1998 as part of a NJDEP Phase IV Remedial Investigation Report. The Respondents will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information noted above in this paragraph, will be utilized in determining additional data needed to characterize the Sites, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA.

4. The Respondents will conduct a visit to the Sites during the scoping phase of the project to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Sites. During the visit to the Sites the Respondents should observe the Sites' physiography, hydrology, geology, and demographics, as well as natural resource, ecological and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Sites, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

5. Once the Respondents have collected and analyzed existing data and conducted a visit to the Sites, the specific project scope will be planned. Project planning activities include those tasks described below as well as identifying data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols. The Respondents will meet with EPA regarding the following activities before the drafting of the RI/FS work plan, sampling and analysis plan, and health and safety plan for the Sites.

a. RI/FS Work Plan (2.3.1)

i. The Respondents will submit a RI/FS work plan and a field operations plan. The field operations plan shall consist of a field sampling and analysis plan, a Quality Assurance Project

Plan, and a health and safety plan. The RI/FS work plan and field operations plan must be reviewed and approved by EPA prior to the initiation of field activities.

ii. The work plan should be developed in conjunction with the field operations plan. The work plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. The schedule shall provide for completion of the RI/FS within 18 months of EPA approval. In addition, the work plan must include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the Sites and the objectives of the RI/FS. Furthermore, the plan will include for the Sites a background summary setting for the Sites' descriptions including the geographic location of the Sites, and to the extent possible, a description of the Sites' physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the history of the Sites and a description of previous responses that have been conducted at the Sites by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Sites.

iii. The major part of the work plan is a detailed description of the tasks to be performed, information needed for each task and for the baseline risk assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this statement of work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for compatibility with EPA's Geographic Information System (GIS), minimum data requirements, data format and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. The Respondents will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required work plan. Because of the unknown details of the Sites and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. The Respondents will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such requirements are identified. In any event, the Respondents are responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

iv. The Field Operations Plan (FOP) provides a mechanism for planning field activities and consists of a field sampling and analysis plan (FSAP) and a quality assurance project plan (QAPP). The Respondents will prepare a field sampling and analysis plan (FSAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs.

v. The FSAP will define in detail the sampling and data-gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The DQOs will at a minimum reflect use of analytical methods to identifying contamination and remediating contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan. In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. For example, EPA encourages the use of field screening techniques that can provide useful information on the concentration and extent of contamination and the need for further laboratory analyses. Field personnel should be available for EPA QA/QC training and orientation where applicable. The Respondents will demonstrate, in advance to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the Sites by EPA. In order to obtain an accurate identification and quantification of volatile organic contamination in soil, the recently adopted methanol preservation method at N.J.A.C. 7:26E-2.1(a)4 must be used. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at these Sites for the purposes proposed and QA/QC procedures approved by EPA will be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that the Respondents submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. The Respondents will provide assurances that EPA has access to laboratory personnel, equipment and records for sample collection, transportation and analysis.

b. Site Health and Safety Plan (2.3.3)

A health and safety plan will be prepared in conformance with the Respondents' health and safety program, and in compliance with OSHA regulations and protocols. The health and safety plan will include the elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control for the Sites.

C. TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. The critical community relations planning steps performed by EPA include conducting community relations plan. Although implementation of the community relations plan is the responsibility of EPA, the Respondents may assist by providing information regarding the history of the Sites, participating in public meetings, or by preparing fact sheets for distribution to the general public. EPA will prepare baseline risk assessment memoranda which will summarize the toxicity assessment and components of the baseline risk assessment. EPA will make this memoranda available to all interested parties for comment and place them in the Administrative Record. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) In addition, the Respondents may establish a community information repository, at or near the Sites, to house one copy of the administrative record. The extent of PRP involvement in community relations activities is left to the discretion of EPA. The Respondents' community relations responsibilities, if any, are specified in the community relations plan. All PRP-conducted community relations activities will be subject to oversight by EPA.

D. TASK 3 - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

1. As part of the RI, the Respondents will perform the activities described in this task, including the preparation of site characterization summaries and RI report. The overall objective of site characterization is to describe areas of the Sites that may pose a threat to human health or the environment. This is accomplished by first determining the Sites' physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. The Respondents will identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. The Respondents will also investigate the extent of migration of this contamination, including building interiors, as well as its volume and any changes in its physical or chemical

characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Sites. Using this information, contaminant fate and transport is then determined and projected.

2. During this phase of the RI/FS, the work plan, FSAP, QAPP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. The Respondents will notify EPA at least two weeks in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field lay out of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. The Respondents will demonstrate that the laboratory and type of laboratory analyses that will be utilized during characterization of the Sites meet the specific QA/QC requirements and the DQOS of the Sites' investigations as specified in the FOP. In view of the unknown conditions of the Sites, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for the Respondents to modify the work specified in the initial work plan. In addition to the deliverables below, the Respondents will provide a monthly progress report and participate in meetings at major points in the RI/FS.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define the Sites physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the Sites. These activities will be performed by the Respondents in accordance with the RI/FS work plan and FOP. At a minimum, this shall address the following:

i. Implement and document field support activities (3.2.1)

The Respondents will initiate field support activities following approval of the RI/FS work plan and FOP. Field support activities may include scheduling, and procuring equipment, office space, laboratory services, and/or contractors. The Respondents may initiate other time critical field support activities, such as obtaining access to the Sites, prior to approval of the RI/FS work plan and FOP. The Respondents will provide EPA with reasonable notice prior to initiating field support activities so that EPA may adequately schedule oversight tasks. The Respondents will also notify EPA in writing upon completion of field support activities.

ii. Investigate and define Site physical and biological characteristics (3.2.2)

The Respondents will collect data on the physical and biological characteristics of the Sites and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the physical characteristics of the Sites the Respondents will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

iii. Define sources of contamination (3.2.3)

The Respondents will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. The Respondents shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QA/QC plan and DQOs.

Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

iv. Describe the nature and extent of contamination (3.2.4)

The Respondents will gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the Respondents will utilize the information on the Sites physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondents will then implement an iterative monitoring program and any study program identified in the RI/FS work plan or FOP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Sites can be determined. In addition, the Respondents will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. EPA will use the

information on the nature and extent of contamination to determine the level of risk presented by the Sites. Respondents will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analysis (3.4)

Evaluate Site characteristics (3.4.1)

The Respondents will analyze and evaluate the data to describe: (1) physical and biological characteristics at the Sites, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the Sites' physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented in an electronic format required by EPA at the time of submission to facilitate EPA's preparation of the baseline risk assessment. The Respondents shall agree to discuss and then collect any data gaps identified by the EPA that is needed to complete the baseline risk assessment. (See "Guidance for Data Useability in Risk Assessment - Publication # 9285.7- 09A - April 1992.) Also, this evaluation shall include any information relevant to characteristics of the Sites necessary for evaluation of the need for remedial action in the baseline risk assessment and for the development and evaluation of remedial alternatives. (See Risk Evaluation of Remedial Alternatives (Part C) - OSWER Directive 9285.7-01C - December 1991.) Analysis of data collected for characterization of the Sites will meet the DQOS developed in the QA/QC plan stated in the FOP (or revised during the RI).

c. Data Management Procedures (3.5)

The Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI.

i. Document field activities (3.5.1)

Information gathered during characterization of the Sites will be consistently documented and adequately recorded by the Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan

and/or the FOP. Field logs or dedicated field log-books must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

ii. Maintain sample management and tracking (3.5.2; 3.5.3.)

The Respondents will maintain field reports, sample shipment records analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in the site characterization reports for the Sites unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, the Respondents will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.6)

The Respondents will prepare for the Sites the preliminary site characterization summaries and the remedial investigation report.

Preliminary Site Characterization Summary(3.6.2)

After completing field sampling and analysis, the Respondents will prepare a concise characterization summary. This summary will review the investigative activities that have taken place, and describe and display data from the Sites documenting the location and characteristics of surface and subsurface feature and contamination at the Sites including the affected medium, types, location types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The site characterization summaries for the Sites will provide EPA with a preliminary reference for the development of the risk assessment, and evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

E. TASK 4 - IDENTIFICATION OF CANDIDATE TECHNOLOGIES (4.2)

The Respondents will identify in a technical memorandum, subject to EPA's review and approval, candidate technologies for a treatability studies program. The memorandum will be submitted after the last set of analytical results collected during the RI

have been validated. The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 8.2). The specific data requirements for the testing program will be determined and refined during characterization of the Sites and the development and screening of remedial alternatives (Tasks 3 and 8, respectively).

F. TASK 5 - TREATABILITY STUDIES; AS NECESSARY

Treatability testing will be performed by the Respondents, at EPA's request, to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by the Respondents.

i. Conduct literature survey and determine the need for treatability testing (4.2.2)

The Respondents will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated, or cannot be adequately evaluated for these Sites on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless the Respondents can demonstrate to EPA's satisfaction that they are not needed, the Respondents will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

ii. Evaluate treatability studies (4.2.3)

Once a decision has been made to perform treatability studies, the Respondents and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible or minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, the Respondents will either submit a separate treatability testing work plan or an amendment to the original site work plan for the Sites for EPA review and approval.

iii. Treatability Testing and Deliverables (4.3)

The deliverables that are required, in addition to the memorandum identifying candidate technologies, where treatability testing is conducted include a work plan, a sampling and analysis

plan, and a final treatability evaluation report. EPA may also require a treatability study and safety plan, where appropriate.

iv. Treatability testing work plan (4.3.2)

The Respondents will prepare a treatability testing work plan or amendment to the original site work plan for the Sites for EPA review and approval describing the background of the Sites, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site for any of the Sites, the Respondents will address all necessary permitting requirements to the satisfaction of appropriate authorities.

v. Treatability study FOP(4.3.3)

If the original QAPP or FASP is not adequate for defining the activities to be performed during the treatability test, a separate treatability study FOP or amendment to the original FOP for the Sites will be prepared by the Respondents for EPA review and approval. Task 1 of this statement of work provides additional information on the requirements of the FOP.

vi. Treatability study health and safety plan (4.3.4)

If the original health and safety plan is not adequate for defining the activities to be performed during the treatment tests, a separate or amended health and safety plan will be developed by the Respondents. Task 1 of this statement of work provides additional information on the requirements of the health and safety plan. EPA does not "approve" the treatability study health and safety plan.

vii. Treatability study evaluation report (4.3.5)

Following completion of treatability testing, the Respondents will analyze and interpret the testing results in a technical report to EPA. Depending on the sequences of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results as compared with predicted results. The report will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

G. TASK 6 - BASELINE RISK ASSESSMENT

Respondents will prepare a Baseline Risk assessment for the Sites which shall be incorporated by the Respondents into the RI. To the extent requested by EPA, Respondents shall provide the information needed for the risk assessment (Task 3).

H. TASK 7 - REMEDIAL INVESTIGATION REPORT

The Respondents will prepare and submit a draft RI report to EPA for review and approval. This report shall summarize results of field activities to characterize the Sites, sources of contamination and the fate and transport of contaminants. The Respondents will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, the Respondents will prepare a final RI report which satisfactorily addresses EPA's comments.

I. TASK 8 - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

The development and screening of remedial alternatives is performed to develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed as a function of the development and screening of remedial alternatives.

1. Development and Screening of Remedial Alternatives(5.2)

The Respondents will begin to develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment, concurrent with the RI site characterization task.

i. Develop general response action(5.2.2)

The Respondents will develop general actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

ii. Identify areas or volumes of media(5.2.3)

The Respondents will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Sites will also be taken into account.

iii. Assemble and document alternatives (5.2.6)

The Respondents will assemble selected representative technologies into alternatives for each affected medium or operable unit.

Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the Sites or the operable unit(s) as a whole. A summary of the assembled alternatives and their related action-specific ARARS will be prepared by the Respondents for inclusion in a technical memorandum.

The reasons for eliminating alternatives during the preliminary screening process must be specified.

iv. Refine alternatives (5.2.7)

The Respondents will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the baseline risk assessment report. Additionally, action-specific ARARS will be updated as the remedial alternatives are refined.

v. Conduct and document screening evaluation of each alternative (5.2.8)

The Respondents may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondents will make a presentation to EPA and the State, identifying the remedial action objectives and summarizing the development and preliminary screening of remedial alternatives.

2. Alternatives Development and Screening Deliverables (5.3)

The Respondents will prepare a technical memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. The memorandum will also summarize the reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening. These will be modified by the Respondents if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

3. Detailed analysis of remedial alternatives

The detailed analysis will be conducted by the Respondents to provide EPA with the information needed to allow for the selection of a remedy for the Sites. This analysis is the final task to be performed by Respondents during the FS.

i. Detailed Analysis of Alternatives (6.2)

The Respondents will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

ii. Apply nine criteria and document analysis (6.2.1-6.2.4)

The Respondents will apply nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance.

(Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative the Respondents should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the individual criterion assessment. If the Respondents does not have direct input on

criteria (8) state (or support agency) acceptance and (9) community acceptance, these will be addressed by EPA.

iii. Compare alternatives against each other and document the comparison of alternatives (6.2.5; 6.2.6)

The Respondents will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. The Respondents will prepare a technical memorandum summarizing the results of the comparative analysis.

iv. Detailed Analysis Deliverables(6.3)

In addition to the technical memorandum summarizing the results of the comparative analysis, the Respondents will submit a draft FS report to EPA for review and approval. Once EPA's comments have been addressed by the Respondents to EPA's satisfaction, the final FS report may be bound with the final RI report.

J. TASK 9 - FEASIBILITY STUDY REPORT (6.4)

The Respondents will prepare a draft FS report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. The Respondents will refer to the RI/FS Guidance for an outline of the report format and the required report content. The Respondents will prepare a final FS report which satisfactorily addresses EPA's comments.

REFERENCES FOR CITATION.

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The (revised) National Contingency Plan

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

"EPA Requirements for QAPPs for Environmental Data Operations," U.S. EPA, Office of Emergency and Remedial Response, QA/R-5, October 1998.

"Interim Guidelines and Specifications for Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.-02

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part A), EPA/540/1-89/002

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part B), EPA/540/R-92/003

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual" (Part D), EPA/540/R-97/033

"Risk Assessment Guidance for Superfund - Volume II Environmental Evaluation Manual," March 1989, EPA/540/1-89/ 001

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G-90/008

"Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSS) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No.9835.15.

"Risk Evaluation of Remedial Alternatives" (Part C), December 1991, OSWER Directive 9285.7-01C.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

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